

NASA TECH BRIEF

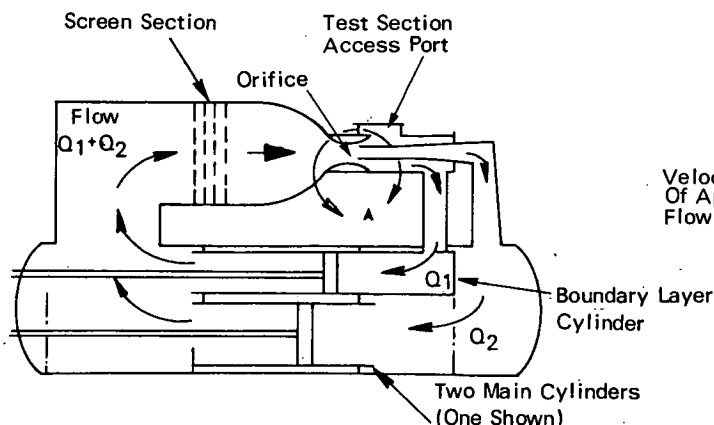
Marshall Space Flight Center



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Anemometer Calibrator

A new gas-velocity instrumentation calibrator generates accurate flow velocities over a wide range of gas pressure, temperature, and composition. Used primarily with air (20% oxygen—80% nitrogen) or 100% oxygen, the calibrator can generate flow velocities from 0 to 500 ft/min at pressures from 1 to 50 psia. Both pressure and flow velocity can be maintained within 1/4%.



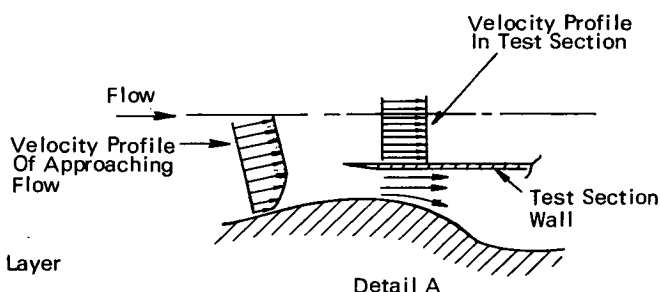
As shown in the figure, the calibrator is essentially a closed-loop hydraulic system containing a positive displacement drive. Three pistons of known area are driven at a known constant rate, causing gas flow through an orifice. The flow velocity can be accurately determined from the piston rate, by accounting for the relative areas of the pistons and the orifice. This direct computation eliminates the need for any second-order calibration of the test instrument itself.

Errors in velocity determination can be caused by the existence of a significant boundary layer in the test region. To avoid this, the boundary region along the orifice wall is drawn off by a separate piston.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
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Reference: B71-10519



Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

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Inca Engineering Corp.
under contract to
Marshall Space Flight Center
(MFS-21424)

Category 03